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TVERSKOY, Pavel Nikolayevich DECEASED
11962

1904

Meteorology

11 B

CATVERSKOY, R.B.

Determination of salicoline in the urine in salicoline
 2 isomorphous. R. B. Tverskiy (Ukrain. Med. Inst.,
 Kharkov). *Vrachebnoe Delo* 26, 927-30(1946).—Sal-
 icoline (a new Soviet alkaloid) is detd. in the urine by mak-
 ing the sample alk. with 5% NaOH, extrn. with Et₂O,
 -evapn. of ext., soln. in 0.1 N HCl, and examn. of fluores-
 cence at 3000-4000 Å. Bluish fluorescence can be de-
 tected in 1:80,000 diln. in artificial solns. and as low as
 1:10,000,000 in urine samples. Patients given the drug
 6 per os or by lcnophoresis show signs of it in the urine within
 1 hr. of administration; this persists for 6 days or longer.
 G. M. Kosolapov

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

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TVERSKOY, R.B., kand.med.nauk; RYBACHENKO, Ye.M. (Khar'kov)

Galvanization of median nerves in a peptic ulcer. Vrach.delo
no.11:131-132 N '62. (MIRA 16:2)

1. Khar'kovskaya oblastnaya klinicheskaya bol'nitsa.
(PEPTIC ULCER) (ELECTROTHERAPEUTICS)

1441 14/14
TVER'YE, N., kand.tekhn.nauk, starshiy prepodavatel'.

Excluding errors in computing the route of a vessel with
position determination by the sun. Mor. flot 18 no.2:7-8
P '58.

(MIRA 11:2)

1.Murmanskoye vyssheye morekhodnoye uchilishche.
(Nautical astronomy)

MURZANOV, K.N. AND TVERSKOY, S.I.

Volgo-Donskoi kanal i ego znachenie dlianeftianoi promyshlennosti. / The Volga-Don Canal and its importance for oil industry/. (Neftianoe khoz-vo, 1928, v. 14, no. 6, p. 731-744). DLC: TN860.N465

SO: SOVIET TRANSPORTATION AND COMMUNICATIONS, A BIBLIOGRAPHY, Library of Congress Reference Department, Washington, 1952, Unclassified.

TVERSKOY, S.Sh.; MARDER, M.I.

Controlling the leakage of petroleum products on tank farms.
Transp. i khran.nefti no.6:30-32 '63 (MIRA 17:3)

1. Glavneftesnabsbyt UkrSSR.

MAYEVSKIY, V.Ya.; TVERSKOY, S.Sh.; MARDER, H.I.; VASLAVSKIY, N.B.

Operation of telescopic devices of the lower discharge of tanks
on tank farms of the Main Administration for Petroleum Marketing
in the Ukraine. Neft. i gaz. prom. no.4:64-67 O-D '63.
(MIRA 17:12)

1. Glavneftesnabsbyt UkrSSR.

BC

A-1

Laboratory gas generator. V. S. TVERIN (J. Appl. Chem. Russ., 1938, 11, 555-556).—Apparatus for generation of C_2H_2 from $EtOH$, which is dehydrated by passing over kaolin at $360-400^\circ$, is described.

R. T.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

BC

M-I-8

Asphalt tar from Grouni salted-base crude oil.
A. I. VONOSOV and V. B. TVERDOV (Nef't. Choz., 1979,
16, 242—246).—Heavy residues (characteristics recorded)
were agitated with superheated steam (320°) and heated
at 350—375°. The properties of the asphalt obtained
(optimal d₄₀₀ 1.003) and of products recovered are
recorded.

CHEMICAL ABSTRACTS.

ASM-AIA METALLURGICAL LITERATURE CLASSIFICATION

Heat conductivity of insulating and building materials. V. S. TYKHETIN AND V. B. MILIN. *Nefteyuznyy Khimicheskiy* 17, 188-203 (1929). Tests were made in an apparatus constructed by the author on the following materials: "asbutorit," 2.5% cement and 97.5% asbestos, 10% cement and 90% asbestos, asbestos (bar), 75% asbestos and 25% infusorial earth, 50% asbestos and 50% infusorial earth, 25% asbestos and 75% infusorial earth, glass silk, glass wool, infusorial earth (bar), "aylo-concrete" (cement 2, sawdust 8), kieselguhr (loose), cork (pressed) and "insulite." The latter material, which is made up of sugar cane and which could be replaced by corn stocks (more convenient for Russian conditions), was found to be the most successful material, its insulating properties depending on the compactness of layer. An equation was constructed to calc. the coeff. of heat transfer.

A. A. BORNTUNG

TVERSKOY, V. I.

Cand Tech Sci - (diss) "Utilization of several characteristics of the propagation of solitary radio signals in retarding systems with non-linear phase characteristic for the analysis of spectra of such signals." Gor'kiy, 1961. 9 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Gor'kiy Polytechnic Inst imeni A. A. Zhdanov); 150 copies; price not given; (KL, 6-61 sup, 226)

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AUTHOR: Tverskoy, V.I.

TITLE: Some Possibilities of the Application of Delay Systems
Having a Non-linear Phase Characteristic

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
1959, Vol 2, Nr 5, pp 724 - 729 (USSR)

ABSTRACT: A transmission line in which the losses are independent of frequency is considered. The propagation constant of the system can be expressed as $\exp(-j\beta(\omega))$, where ω is the frequency, $\beta(\omega)$ is the phase constant and l is the electrical length of the line. If a signal $f(t)$ is applied to the input of the line, the voltage at the output is expressed by:

$$g(t) = \frac{1}{\pi} \operatorname{Re} \int_0^{\infty} F(\omega) \exp[j\omega t - j\beta(\omega)] d\omega \quad (1)$$

where $F(\omega)$ is the spectrum of the signal. In the simplest case, the phase characteristic of the system

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is linear, as expressed by:

$$\beta(\omega) = \beta_0 + a_1(\omega - \omega_1) + a_2(\omega - \omega_1)^2 \quad (2)$$

where:

$$\omega_1 < \omega < \omega_2 \quad (3)$$

where ω_1 and ω_2 are the limiting frequencies of the passband of the system. Eq (1) can therefore be written as Eqs (4). From this it is seen that when:

$$\lambda^2/4|a_2| \ll 1 \quad (5)$$

and if $h_1(t - \lambda)$ is independent of $(t - \lambda)$, the output signal can be represented by Eqs (6), while its envelope is given by Eq (7), where M is a complex constant. It is seen, therefore, that the envelope of

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the output signal (under the above conditions) reproduces faithfully the modulus of the spectrum of the input signal. The conditions under which $h_1(t - \lambda)$ is independent of $(t - \lambda)$ are expressed by Eqs (12). The case when the delay time is a non-linear function of frequency is of practical interest. The analysis of this case is carried out under the assumption that the bandwidth of the system ranges from ω_1 to ω_2 , while the spectrum of the signal differs substantially from zero in the interval $(\omega_{01}, \omega_{02})$. By introducing a new variable:

$$u^2 = \varphi(\omega) - \varphi(\omega_0) \quad (14)$$

where $\varphi(\omega) = \int \beta(\omega) - \omega(t - \lambda)$, the output signal can be approximately expressed by Eqs (17), where the derivatives of $\varphi(\omega)$ are defined by the first two equations on p 727.

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Some Possibilities of the Application of Delay Systems Having a Non-linear Phase Characteristic

The function $\varphi(\omega_0(t - \lambda))$ can be expanded into a series, as shown by Eq (18). From Eqs (17) and (18) it follows that, if in the spectral interval $(\omega_{01}, \omega_{02})$, the quantity given by Eq (19) is independent of $(t - \lambda)$ and if the inequalities of Eqs (20) and (21) are fulfilled, the envelope of the output signal of the line will give a faithful reproduction of the spectrum of the input signal. It can be shown that if the condition given by Eq (20) is met and the inequality of Eq (22) is fulfilled, Eq (19) is independent of $(t - \lambda)$. The output signal can now be represented by Eq (25), which is similar to Eq (6). Eq (25) can be written as Eq (26). In this, the function F represents the modulus of the spectrum, while ψ gives the phase of the signal spectrum. The instantaneous frequency of the output voltage is given by Eq (27). From the above, it follows that a delay system having a non-linear phase characteristic and a comparatively long delay time can be employed as an

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Some Possibilities of the Application of Delay Systems Having a
Non-linear Phase Characteristic

analyser of the spectra of single radio pulses.
There are 2 Soviet references.

SUBMITTED: April 18, 1959

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E192/E382

9.2590

AUTHOR: Tverskov, V.I.

TITLE: Some Problems in the Transmission of Single Radio
Signals Through Delay Systems with Nonlinear Phase
Characteristics

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Radiofizika, 1960, Vol. 3, No. 5, pp. 907 - 909

TEXT: A general problem of the transmission of single radio
signals through delay systems having an arbitrary nonlinear
phase characteristic $\beta(\omega)$ is considered. It is assumed that
the delay time is a monotonic function of frequency. The
system has a comparatively large electrical length L and
its transfer coefficient $K(\omega)$ is an arbitrary function of
frequency; $K(\omega)$ is continuous and different from zero over
a certain frequency interval (from ω_1 to ω_2). A general
formula for the output voltage of the system was derived in
an earlier paper (Ref. 1). The formula is now used to find
the output signal of the system and it is shown that this is

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Some Problems in the Transmission of Single Radio Signals
Through Delay Systems with Nonlinear Phase Characteristics
expressed by:

$$g(t) = \text{Re} \left\langle \frac{2K[\omega_0(t)] |F[\omega_0(t)]|}{\sqrt{2\pi} t^{\beta}[\omega_0(t)]} \exp \left\{ j t \omega_0(t) - \right. \right. \\ \left. \left. - j t^{\beta}[\omega_0(t)] + j \psi[\omega_0(t)] - j \frac{\pi}{4} \right\} \right\rangle.$$

where $F(\omega_0)$ is the modulus of the spectrum of the input
signal and

$\psi(\omega_0)$ is its phase.

From Eq. (6) it is found that the envelope and the
instantaneous frequency of the output signal can be
expressed by:

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Some Problems in the Transmission of Single Radio Signals
Through Delay Systems with Nonlinear Phase Characteristics

$$K_0(t) = \frac{2K[\omega_0(t)]}{\sqrt{2\pi l \beta''[\omega_0(t)]}} |F[\omega_0(t)]|;$$

$$\omega_s(t) = \frac{d}{dt} \{l\omega_0(t) - l\beta[\omega_0(t)] + \psi[\omega_0(t)]\} = \omega_0(t) + \frac{\psi'[\omega_0(t)]}{l\beta''[\omega_0(t)]}.$$

Eqs. (7) and (8) may be used to solve two problems in the case of a long line:

- 1) determination of the spectral characteristics of the signal, the line parameters being known, and
- 2) determination of the characteristic of the line if the spectral characteristics of the signal are known.

When solving the first problem the modulus of the spectral function can be determined either by multiplying the envelope

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Some Problems in the Transmission of Single Radio Signals
Through Delay Systems with Nonlinear Phase Characteristics

of the output voltage by a known function of time $v(t)$ or
by connecting in series with the delay system a suitable
quadrupole whose transfer function is a suitable function
of frequency. In the second case, the radio pulse is chosen
in such a way that $\psi(\omega) = 0$ and so $\omega_M(t) = \omega_0(t)$.

There is 1 Soviet reference.

SUBMITTED: July 8, 1959

Card 4/4

TVERSKOY, V.I.

Some possible uses of a delay system with nonlinear phase
characteristic, Izv.vys.ucheb.nav.; radiofiz. 2 no.5:
724-729 '59. (MIRA 1315)
(Pulse techniques(Electronics))

TVERTSYN, V. S.

TVERTSYN, V. S. "A peculiar distribution of potential in certain electrolytes",
Trudy Mar'ysk. gos. ped. in-ta, Vol. VII, 1948, p. 155-62.

SO: U 3042, 11 March 53, (Letopis 'Zhurnal 'nykh Statoy No.7 1949).

TVERTSYN, V. S.

TVERTSYN, V. S. and SANDCHIRKII, A. N. "On the problem of the 'protective action' of the oxide layer on aluminum", Trudy Mariysk, pos. ped. in-ta, Vol. VII, 1948, p. 163-66.

SO: U-3042, 11 March 53, (Letopis 'Zhurnal 'nakh Statey, No. 7 1949).

CH

A laboratory gas generator. V. N. Tsvetkov /
Applied Chem. (U. S. S. R.) II, 895 (in German) 1960
(1963).—Construction details of the generator are given.
 $\text{CH}_2=\text{CH}_2$ is produced by decomposn. of EtOH in the
presence of the catalysts (granulated kieselguhr and AlCl₃)
at 380–400°. The operation is automatic and the lab.
is provided with a gas of high calorific value. A. A. P.

ASH-LEA METALLURGICAL LITERATURE CLASSIFICATION

L 63952-55 INT(1)
ACCESSION NR: AP5016053

UR/0368/65/002 005/0473/0475
535.853.34

AUTHOR: Aleksandrov, O. V., Gofren, M. V.; Keylina, T. I.; Tveryanina, R. I. (Deceased)

TITLE: Monochromators for the ultraviolet and visible regions of the spectrum

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 5, 1965, 473-475

TOPIC TAGS: monochromator, monochromatic radiation, optical equipment

ABSTRACT: The article is the text of a paper read at the Sixteenth Conference on Spectroscopy, 2 February 1965. Two new monochromators with diffraction gratings, developed by the Leningrad Society of Spectroscopical Enterprises, are described. The VMR-2 vacuum monochromator is designed for monochromatic radiation in the 500-2500 Å range and may be used for measuring the reflection and transmission coefficients of various materials, and also for studying light sources. The device uses an aluminized concave diffraction grating with 600 lines per mm and a radius of curvature of 1 m. Relative aperture of the system is 1:16; linear dispersion is 16 Å/mm. Measurements may be made at angles of incidence of 12, 36, 45, and 70°. Measurement error is 1.0-1.5%. The VMR-2 monochromator is a high-trans-

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ACCESSION NR: AP5016053

mission instrument designed for isolation of monochromatic radiation in the ultra-violet, visible, and infrared regions of the spectrum. The device is used primarily as a source of monochromatic emission for excitation of luminescence spectra and also for studying various sources of radiation. The working range of the device is 0.2—2.5 μ . Three replaceable flat diffraction gratings are used with 1200, 600, and 300 lines per mm. The relative aperture is 1:2.4. The objective is a parabolic mirror with a focal length of 400 mm. Light scattering is less than 5% for the 2500 Å region. These monochromators should be on the market in 1965. orig. art. has: 2 figures.

ASSOCIATION: Leningradskoye ob"yedineniye optiko-mekhanicheskikh predpriyatiy (Leningrad Society of Opticomechanical Enterprises)

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ENCL: 00

SUB CODE: OP

NO REF SOV: 000

OTHER: 000

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TVRTKOVIC, Rifat, d-r

Surgical aspects of pleuropulmonary infections in children
with special reference to decortication. Med arh., Sarajevo
14 no.1:99-110 Ja-F '60.

1. Hirurška klinika Medicinskog fakulteta u Sarajevu, sef: prof.
d-r Blagoje Kovacevic.
(LUNG DISEASES in inf. & child)

TVERYANKINA, R.I.

The DFS-a and DFS-3 spectrographs with diffraction gratings.
Izv. AN SSSR. Ser. fiz. 19 no.1:28-29 Ja-F '55.
(Spectrum analysis) (Spectrometer) (MIRA 8:9)

KEDROV, R., inzh.; TVER'YANOVICH, E.

Automation creates unemployment. IUn.tekh. 6 no. 3:42-45 Mr '62.
(MIRA 15:4)

(United States--Automation--Economic aspects)

V.A. TVER'YANOVICH

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Tekhnika i Tekhnologiya Obrabotki Morskikh Mlekopitayushchikh: Kity, Del'finy i
Lastonogiye (The techniques and technology of processing Marine Mammals:
Whales, Dolphins, and Pinnipedia, By) V. A. Bodrov, S. N. Grigor'yev
(I) V. A. Tver'yanovich. Moskva. Pishchepromizdat, 1958.
588 p. Illus., Diags., Tables.
"Literatura: p. 582-585.

BODROV, Vikentiy Alekseyevich, inzh., GRIGOR'YEV, Sergey Nikolayevich, inzh.,
TYER'YANOVICH, Vladimir Antonovich, inzh.; NAGURSKIY, A.V., prof.,
spetsredaktor.; MOROZOVA, I.I., red.; GOTLIB, E.M., tekhn. red.

[Equipment and methods for processing marine mammals; whales,
dolphins, and pinnipedia] Tekhnika i tekhnologiya obrabotki morskikh
mlakopitalushchikh; kity, del'finy i lastonogie. Moskva, Pishchepromizdat,
1958. 588 p. (MIRA 11:11)

(Pinnipedia)
(Whales)
(Dolphins)

SHESTOV, I.N.; SHENKHOV, A.V.; TVER'YE, F.M.

Using silica gel for concentrating trace elements from highly mineralized Paleozoic waters. Neftegaz.geol. i geofiz. no.8:33-35 '65. (MIRA 18:8)

1. Kamskiy filial Vsesoyuznogo nauchno-issledovatel'skogo geologorazvedochnogo neftyanogo instituta, Moskva.

TVER¹VE, M. M.

Electric Engineering

Leningrad convention of the readers of the periodical "Rabochiy energetik." Rab. energ.
3, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

91-58-7-27/27

AUTHOR:

Tver'ye, M.M.

TITLE:

The Conference of Readers of "Energetik" Periodical in Leningrad (Konferentsiya chitateley zhurnala "Energetik" v Leningrade).

PERIODICAL:

Energetik, 1958, Nr 7, p 40 (USSR)

ABSTRACT:

For the further improvement of the work of "Energetik" periodical, the Leningradskoye pravleniye nauchno-tekhnicheskogo obshchestva energeticheskoy promyshlennosti (Leningrad Administration of the Scientific-Technical Association of the Power Engineering Industry) and the editorial office of this periodical convened a conference of readers in Leningrad. An organizing committee was constituted. The readers of this periodical, the workers of electric power plants, networks and power sections of industrial enterprises participated. A report of the chief editor on the 1957 work of the periodical was heard. Those who spoke after the chief editor emphasized that the style of articles renders the periodical helpful to large groups of workers, foremen and power engineers. In 1957, the personnel of the "TETs" Nr 15 and of the Leningradskaya vysokovol'tnaya set' (Leningrad High Voltage Grid) utilized several articles in

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The Conference of Readers of "Energetik" Periodical in Leningrad

their practice. These articles and the names of their respective authors are listed. On the other hand, it was noted at the conference that the periodical does not sufficiently comment on new foreign techniques and lags in the discussions of important power problems. Recommendations were given to the chief engineers of enterprises, the chiefs of rayons, workshops and substations requesting their assistance in extending these discussions.

1. Conferences--Readers of "Energetik"--Leningrad
2. Periodicals
--"Energetik"--USSR

Card 2/2

PISAREVSKIY, I.I., inzh.; GOLIKOV, V.S., inzh.; TVER'YE, M.M., inzh.

Modernization of a steam turbine. Energetik 9 no.3:13-16 Mr '61.
(Steam turbines) (MIRA 14:7)

TVER'YE, M.M.

Conference of "Energetik" readers in Leningrad. Energetik 6
no.7:40 J1 '58. (MIRA 11:10)
(Power engineering--Periodicals)

POLTAVTSEV, A., kapitan dal'nego plavaniya; TVER'YE, N., dotsent,
starshiy nauchnyy sotrudnik

"Nautical astronomy" by B.P.Krasavtsev, B.P.Khlinstin. Reviewed
by A.Poltavtsev, N.Tver'e. Mor. flot 22 no.2:45 F '62.

~~1. Tsentral'nyy nauchno-issledovatel'skiy institut morskogo~~ (MIRA 15:4)

flota.

(Nautical astronomy) (Krasavtsev, B.P.) (Khlinstin, B.P.)

TVER'YE, N.M., kand. tekhn. nauk

Technology of transporting unrefined sugar by sea. Trudy
TSNIIMF no.48:72-82 '63.
(MIRA 16:8)

TVER'YE, N.M., kand. tekhn. nauk

Nomogram for determining a reduction. Inform. stor. **TSNIIMF**
no.74: Sudovozh. i sviaz' no.19:87-90 '62.

(MIRA 16:6)

(Nomography(Mathematics))
(Latitudes)

POSTCARD

ACCESSION NR: AT4031811

S/2914/62/000/079/0068/0071

AUTHOR: Tver'ye, N. M. (Candidate of technical sciences)

TITLE: Calculation of the time of the apparent rising and setting of the upper edge of the sun and of the beginning of the morning and end of the evening twilight

SOURCE: Leningrad. Tsentral'nyy nauchno-issledovatel'skiy institut morskogo flota. Informatsionnyy sbornik, no. 79, 1962. Sudovozhdeniye i svyaz' (Navigation and communications), no. 20, 68-71

TOPIC TAGS: sun, sunset, astronomy, navigation, sunrise, stellar navigation, stellar calculation

ABSTRACT: According to various authors, the calculation is performed as follows: The average local time for the culmination of the sun (T_M) is selected from the Naval Astronomical Almanac (MAE). The time angle of the sun corresponding to rising or setting is then computed (t_{SN}). From T_M and t_{SN} the local time T_S for sunset or sunrise or beginning of morning or end of evening twilight is computed. If there is an error in the t_{SN} calculation, it will be carried over into the value of T_S . Two methods for calculation

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of t_{SN} are available. The first method uses Equation (1)

$$\sin^2 \frac{t_{SN}}{2} \approx 0.5 \sec \varphi \sec \delta \cos (\varphi \sim \delta) \left[1 + \frac{\sin^2 t_{SN}}{\cos (\varphi \sim \delta)} \right] \quad (1)$$

The second method uses Equations (2) to (5)

$$\cos t_1 = -\tan \varphi \tan \delta, \quad (2)$$

$$\operatorname{cosec} A = \sec \delta \operatorname{cosec} t_1, \quad (3)$$

$$\Delta t = \sec \varphi \operatorname{cosec} A \Delta h, \quad (4)$$

$$t_{SN} = t_1 + \Delta t, \quad (5)$$

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where t_1 is the time angle of the true rising or setting of the center of the sun. In this method only the first differential, Δt , is used. The error due to omission of the second differential, $\Delta^2 t$, is the one which will be present in T_s . For $h = 0$, $h = 55^\circ = -0.0160$ radians, $\Delta^2 t$ in minutes of time is shown to be (sunrise and sunset).

$$\Delta^2 t^m = 0.059 \sec^2 \varphi \sec^2 \delta \csc^2 t_1 \cot t_1 \quad (6a)$$

For civilian twilight time ($\Delta h = -6^\circ = -0.1047$ radians),

$$\Delta^2 t^m = 2.513 \sec^2 \varphi \sec^2 \delta \csc^2 t_1 \cot t_1 \quad (6b)$$

and for navigational twilight time ($\Delta h = -12^\circ$)

$$\Delta^2 t^m = -10.053 \sec^2 \varphi \sec^2 \delta \csc^2 t_1 \cot t_1 \quad (6c)$$

The error in T_s due to the omission of the second differential increases with the observer's latitude and sun's inclination.

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Values of t_i computed from Eq. (2) for various φ and f and for $h = 0$ are tabulated, as well as $\Delta^2 t^m$ for $\varphi = 30^\circ, 60^\circ$ and $70^\circ N$. It is concluded that both methods are sufficiently accurate for navigational purposes but the second method should not be used for navigational twilight calculations because the error exceeds the acceptable $\pm 1^m$ even at small latitudes. Orig. art. has: 2 tables and 10 formulas.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut morskogo flota, Leningrad (Central Naval Scientific Research Institute)

SUBMITTED: 00

DATE ACQ: 05 May 64

ENCL: 00

SUB CODE: AA, NG

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OTHER: 000

Card

4/4

TVER'YE, N., ^M inzhener-sudovoditel'.

Plotting altitude position lines on paper. Mor.flot 16 no.8:13-14
Ag '56. (MLRA 9:10)

1. Murmanskoye Voenno-morskoye uchilishche.
(Nautical astronomy)

¹²⁷
TVER'YE N., kandidat tekhnicheskikh nauk.

Particular cases of ship position determination by means of nautical
astronomy. Mor.flot 17 no.3:8-10 Mr '57. (MLRA 10:3)

1. Murmanskoye vyssheye morekhodnoye uchilishche.
(Nautical astronomy)

TVER'YE, N.M., kand.tekhn.nauk

Calculating the time of the visible rising and setting of the upper edge of the sun and the start of the morning and end of the evening twilight periods. Inform. sbor. TSNIIMF no.'79 Sudovozh.1 (MIRA 16:7) sviaz' no.20:68-71 '62.

(Nautical astronomy)

TVER'YE, S.

Under the new conditions. Pozh.delo 9 no.11:12 N '63.

1. Nachal'nik otдела Gosudarstvennogo pozharnogo nadzora Upravleniya pozharnoy okhrany Permskoy oblasti.

TVER'YE, S.

Fire-Prevention measures for warehouses. Pozh. delo 5 no.5:12
My '59. (MIRA 12:6)

1. Nachal'nik Upravleniya pozharney okhrany Permskogo oblispolkoma.
(Perm Province--Fire prevention)

COUNTRY	:	Rumania	E-9
CATEGORY	:		
ABS. JOUR.	:	RZKhim., No. 21 1959, No.	74281
AUTHOR	:	Tvetkov, I. V. and Cijikov, T. M.	
INOT.	:	Not given	
TITLE	:	On the Kinetics of the Reduction of Lead Oxide by Carbon Monoxide	
ORIG. PUB.	:	An Rom-Sov Ser Metalurgie, 12, No 4, 31-43 (1958)	
ABSTRACT	:	A translation. See RZhKhim, 1958, No 6, 17113.	

CARD: 1/1

KIPSHIDZE, N.N.; TVILDIANI, D.D.; DUMBADZE, Z.G.

Rheoencephalographic research in hypertension. Ter. arkh. 35
no.4:35-40 Ap'63 (MIRA 17:1)

1. Nauchno-issledovatel'skogo instituta eksperimental'noy i
klinicheskoy terapii (dir. N.N.Kipshidze) Ministerstva zdra-
vookhraneniya Gruzinskoy SSR.

TVILDIANI, D.D.

Effect of mechanical stimulations of the duodenum on coronary circulation under conditions of experimental neurosis. Soob. AN Gruz. SSR 19 no.3:369-376 S '57. (MIRA 11:5)

1. Akademiya nauk Gruzinskoy SSR, Institut klinicheskoy i eksperimental'noy kardiologii im. M.D. TSinamdzhvishvili, Tbilisi. Predstavleno chlenom-korrespondentom Akademii A.N. Bakuradze.

(DUODENUM--INNERVATION) (HEART) (NEUROSES)

TVILDIANI, D.D. Cand Med Sci -- (diss) "Effect of mechanical stimulation of
the duodenum upon ^{the} heart and coronary blood circulation in experiment."
Tbilisi, 1958. 25 pp (Tbilisi State Med Inst), 160 copies (KL, 57-58, 108)

KIPSHIDZE, N.N.; CHUMBURIDZE, I.T.; TVILDIANI, D.D.; DUMBADZE, Z.G.

Use of Likent's test in coronary insufficiency. Terap.arkh.
no.6:97-102 '62. (MIRA 15:9)

1. Iz Nauchno-issledovatel'skogo instituta eksperimental'noy i
klinicheskoy terapii (dir. - dotsent N.N. Kipshidze) Ministerstva
zdravookhraneniya SSR.
(CORONARY HEART DISEASE) (ELECTROCARDIOGRAPHY)

TVILDIANI, D.D.

KIPSHIDZE, N.N.; CHUMBURIDZE, T. I.; TKESHELASHVILI, L.K.; TVILDIANI, D.D.
~~TORDIYA~~ TORDIYA M.V.; DUMBADZE, A.G.; SALUKVADZE, N.S.; DIDEKASHVILI, A.A.;
GAVAKHISHVILI, N.N.

Studies on Cardiovascular System, some Biochemical, Hematologic and
Haemostatic Blood Indications in Old Age. Clinical Cardiology

Gerontology, 6th International Congress, Copenhagen, Denmark
11-16 August 1963

TVILDIANI, D.D.

New method for simulating coronary insufficiency. Kardiologiya
no.1:77-79 '64. (MIRA 17:10)

1. Nauchno-issledovatel'skiy institut eksperimental'noy i
klinicheskoy terapii (dir., dotsent N.N. Kipshidze) Ministerstva
zdravookhraneniya Gruzinskoy SSR, Tbilisi.

TVILDIANI, D.D.

Effect of mechanical irritation of the stomach, the duodenum
and the cecum on the heart and coronary blood circulation.
Trudy Inst. klin. i eksper. kard. AN Gruz. SSR 7 no.2:71-81
'61. (MIRA 17:1)

KIPSHIDZE, N.N.; CHUMBURIDZE, I.T.; TVILDIANI, D.D.; DUMBIDZE, Z.G.

Changes in the duration of individual phases of mechanical systole of the left ventricle and pulse wave spread rate in arteries of elastic and muscular type in hypertension. Kardiologiya 3 no.3:27-33 My-Je'63. (MIRA 16:9)

1. Iz Nauchno-issledovatel'skogo instituta eksperimental'noy i klinicheskoy terapii (dir. - dotsent N.N.Kipshidze) Ministerstva zdravookhraneniya Gruzinskoy SSR.
(HYPERTENSION) (PULSE)
(HEART BEAT)

IVANOV, N.I., kand.tekhn.nauk; KULAKOV, A.M., inzh.; SHAKHLIN, V.I., inzh.;
GAZHUR, F.G., inzh.; NADYRSHINA, L.S., inzh.; TVILINEV, F.Ya., inzh.

Flame stands for the investigation of thermal processes in furnaces.
Stal' 22 no.8:759 Ag '62. (MIRA 15:7)

1. Magnitogorskiy metallurgicheskiy kombinat.
(Metallurgical furnaces—Combustion)
(Heat—Transmission)

TVING, Ye.I.

Use of oxygen therapy in combined treatment of infants with
pneumonia. *Pediatrica* no.9:27-33 '61. (MIRA 14:8)

1. Iz kafedry gosspital'noy pediatrii (zav. - prof. Ye.N.
Khokhol) Kiyevskogo meditsinskogo instituta imeni akad.
A.A. Bogomol'tsa (dir. - dotsent V.D. Bratus').
(OXYGEN—THERAPEUTIC USE) (PNEUMONIA)

BORISOV, V.V.; KORROL', V.V.; TUNKOV, V.P.; TVIROV, V.I.

Deoxidation of steel by aluminum-silicon. Stal' 23 no. 2:219
S '65. (MIRA 18:9)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy
metallurgii i Metallurgicheskiy zavod "Serp i molot".

POLAND/Laboratory Equipment.

F.

Abs Jour : Ref Zhur - Khimiya, No 16, 1958, 53592

Author : Tvorek

Inst :

Title : An Apparatus for Enthalpy of Evaporation of Individual Liquids as Well as of homo- and Hetero-Azeotropes.

Orig Pub : Roczn. Chem., 1957, 31, No 2, 699-704

Abstract : With this apparatus it is possible to determine the enthalpy of evaporation (EE) of a liquid at its boiling point, by measuring the condensation enthalpy of a known vapor mass. The characteristic features of this apparatus is that it has an application range much wider than previously employed equipment, that it is possible to determine the EE of hetero-azeotropic systems, that it requires fewer corrections, that it is more simplified in its maintenance and technique, and that the results obtained are significantly accurate.

Card 1/2

POLAND/Laboratory Equipment.

F.

Abs Jour : Ref Zhur - Khimiya, No 16, 1958, 53592

A description is given of the apparatus and its working principle, as well as the technique for making measurements. The accuracy is 0.02%.

Card 2/2

5

POLAND / Microbiology. Microorganisms Pathogenic to Humans
and Animals.

F-3

Abs Jour : Ref Zhur - Biol., No 8, 1958, No 33868

Author : Tvorek, Serokova

Inst : Not given

Title : Isolation of Brucella Suis from Rabbits.

Orig Pub : Przegl. epidemiol., 1956, 10, No 4, 369-370

Abstract : Brucellosis agglutinins were found in 51 (6.9%) of 733
rabbits shot on the territory of Olshtin district. In one
of the rabbits a strain of Brucella suis was isolated from
a pancreas abscess.

Cerd 1/1

YUGOSLAVIA / Microbiology. Microorganisms Pathogenic to Humans and Animals. F-5

Abs Jour : Ref Zhur - Biol., No 20, 1958, No. 90954

Author : ~~Tvoric, Stanko~~

Inst : ~~Not given~~

Title : The Problem of Prolonged Release of Tetanus Toxoid
Injected into the Host Parenterally

Orig Pub : Archiv biol. nauka, 1954, 6, No 3-4, 291-297 (Serbo-Croat;
res. Ger.)

Abstract : No abstract given

Card 1/1

60

TVORIC, S.

Inst for Med. & Inst. for Reontgenology, Vet. Fac. "eograd

TVORIC, STANKO (Veterinary Major)

"Measures Which Should be Introduced in Unites in Connection
with Supplying Horses with Corn (Maize)"

SO: Vojno-Tehnicki Glasnik, Issue 12, Belgrade, Dec 1953
(D-6578, 18 Feb 54)

TVORIDLO, M.

The practical farmer; tillage and agricultural crops L'viv, Tovarystvo imeni Shevchenka,
1928. 455 p/

FREYDENBERG, A.S.; DIKSHEYN, Ye.I.; TRIFONOV, A.G.; ARTAMONOV, M.P.;
TVOROGOV, A.R.; SHAKHLIN, V.I.; TARASOV, A.F.

Repair of tapping holes on open-hearth furnaces. Metallurg 9
no.7:20-22 J1 4. (MIRA 17:8)

1. Magnitogorskiy metallurgicheskiy kombinat.

BLAGONRAVOV, S.I.; BREK, B.M.; BYAKOV, P.T.; VIKTOROV, V.S.; VAGANOV,
V.I.; GUSEV, S.A.; GLEBOV, V.V.; GURILEV, A.M.; DANILOV, G.D.;
ZAV'YALOV, V.G.; IOFFE, Ye.F.; IZVEKOV, G.M.; KONCALOV, S.A.;
KULIGIN, A.S.; KASATKIN, A.P.; KUZNETSOV, N.I.; LEBEDEV, A.I.;
LEMPERT, Ye.N.; MARGEVICH, Ya.I.; MAYZEL', M.A.; MITYAKOV, V.S.;
NOSKOV, M.M.; RYABCHIKOV, M.Ya.; RATSMAN, N.I.; TWOROGOV, M.K.;
UGOL'NIKOV, V.Ya.; KHAR'KOV, G.I.; CHADOV, S.L.

Lev Mil'evich Matveev; obituary. Torf. prom. 38 no.4:38 '61.

(MIRA 14:9)

(Matveev, Lev Mil'evich, 1914-1961)

TVOROGOV, N.

Fuselage for model airplanes with rubberband motors. Kryl.red.2
no.3:22-24 Mr '51. (MIRA 10:2)
(Airplanes--Models)

TVOROGOV, N.N.

Preparation of thin dielectric films of boron oxide on metallic supports. Zhur. Prikl. khim. 33 no.12:2778-2780 D '60. (MIRA 14:1)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Boron oxide)

Tvorogov, N. N.

S/078/60/005/008/018/018
B004/B052

AUTHOR: Tvorogov, N. N.

TITLE: Answer to a Letter From Yu. B. Paderno, G. V. Samsonov
" On the Problem of Borides of Metals of Rare Earths "

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 8,
pp. 1915-1917

TEXT: The author replies to the criticism of the two researchers:
(1) A mistake was probably made in the determination of the boron
content in boron carbide, which the author had been given by G. V.
Samsonov. The boron content of B_4C was higher than reported. (2) The
nature of the developing compounds can only be determined on the basis
of radiographical and chemical analyses, since the occurrence of
several phases radiographically recognizable due to dissociation, need
not affect the total composition determined by chemical analysis. (3)
The correctness of the lattice constants determined by the author is
proven by the comparison with the data of other researchers (Table).
(4) As to the criticized experimental temperatures, the author applied

Card 1/2

Answer to a Letter From Yu. B. Paderno,
G. V. Samsonov "On the Problem of Borides
of Metals of Rare Earths"

S/078/60/005/008/018/018
B004/B052

a method developed by G. V. Samsonov et al. (Refs. 13,14). The author also obtained only TuB_4 in his attempt to produce thulium hexaboride, and he determined the lattice constants of the latter. (5) Since the author's paper was already submitted on June 7, 1958, papers published later could not be considered. Referring to the literature, the author doubts Yu. B. Paderno's priority in the production of terbium borides. There are 1 table and 18 references: 12 Soviet, 3 US, 1 Danish, 1 German, and 1 French. ✓

ASSOCIATION: Institut radiotekhniki i elektroniki Akademii nauk SSSR
(Institute of Radio Engineering and Electronics of the
Academy of Sciences USSR)

SUBMITTED: February 8, 1960

Card 2/2

TVOROGOV, N.N.

Reply to the letter by IU. B. Paderno, G. V. Samsonova "On the
borides of rare earth metals." Zhur. neorg. khim. 5 no.8:1915-
1917 Ag '60. (MIRA 13:9)

1. Institut radiotekhniki i elektroniki Akademii nauk SSSR.
(Rare earth borides)
(Paderno, IU. B.) (Samsonova, G.V.)

SAVITSKAYA, Ya.S.; TVOROGOV, N.N.; KALABUKHOVA, S.V.; BRYKINA, L.S.

Thermal decomposition of yttrium, scandium, and lanthanum
oxalates. Zhur.neorg.khim. 7 no.9:2029-2033 S '62. (MIRA 15:9)
(Rare earth oxalates)

SOV/78-4-9-4/44

5(2)

AUTHOR:

Tvorogov, N. N.

TITLE:

Investigation of the Hexaborides of the Rare Earths and the Yttrium

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9, pp 1961-1966 (USSR)

ABSTRACT:

Up to the present the hexaborides of all the rare earths with the exception of terbium and thulium have been prepared. Because of the great practical interest in the boron compounds of rare earths and yttrium (Refs 1-4) the hexaborides of Tb and Tu were prepared, and the synthesis of the known hexaborides of the rare earths and yttrium was repeated. The hexaborides of Y, La, Ce, Pr, Nd, Sm, Gd, Tb, Ho, Er, and Yb were obtained according to the reaction scheme $\text{Me}_2\text{O}_3(\text{MeO}_2) + \text{B}_4\text{C} + (\text{C}) \rightarrow \text{MeB}_6 + \text{CO}$ by means of a vacuum furnace, the hexaborides of Eu and Tu according to the reaction $\text{Me}_2\text{O}_3 + \text{B} + \text{C} \rightarrow \text{MeB}_6 + \text{CO}$. Analytical data on some of the oxides used are given in table 1. In table 2 the analytical data on the hexaborides of Y, La, and Ce are listed. The remaining compounds were obtained in such low yields that

Card 1/3

SOV/78-4-9-4/44

Investigation of the Hexaborides of the Rare Earths and the Yttrium

they were not analyzed chemically. However, all the reaction products were investigated radiographically (X-ray apparatus of the type URS-55, RKD camera). Pycnometric density determinations were carried out for the products which were formed in sufficiently large quantities (Table 5). In the radiograph the hexaborides of La, Ce, Pr, Nd, Sm, Eu, and Yb exhibit only spectral lines which correspond to the hexaboride phase (Table 3). The hexaborides of Gd, Tb, and Ho show additional lines of other phases (Table 4). For these compounds an investigation of the limit of homogeneity would be necessary. A comparison of the lattice constants obtained with the values determined by other research workers (Refs 18, 27, 31-33) confirms the dependence of the lattice constant (and the density) of the hexaborides on the atomic radius of the metal (Figs 1, 2), whereas the lattice constants of the borides MeB_4 and MeB_x

vary proportionally to the ionic radius (Fig 3). The lattice constants for Gd, Dy, and Ho deviate from data given by other authors (Refs 15-18, 27). The author thanks Ya. S. Savitskaya for the interest taken in the investigation. There are 3 figures, 5 tables, and 34 references, 7 of which are Soviet.

Card 2/3

SOV/78-4-9-4/44

Investigation of the Hexaborides of the Rare Earths and the Yttrium

ASSOCIATION: Institut radiotekhniki i elektrotekhniki Akademii nauk SSSR
(Institute of Radio Engineering and Electrical Engineering
of the Academy of Sciences, USSR)

SUBMITTED: June 7, 1958

Card 3/3

SOV/80-32-5-19/52

5(2,4)

AUTHOR: Tvorogov, N.N.

TITLE: The Preparation of Thin Dielectric Films of Silicon Dioxide and Some of Their Properties

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 5, pp 1043-1046 (USSR)

ABSTRACT: Thin films of various substances are used in the production of photo-elements, rectifiers, capacitors, high-ohm resistors, etc. The production of such films in the vacuum needs high temperatures of 1,800°C and the purity of the product depends on the quartz employed. In [Ref 2] the production of such films by the dissociation of the ethyl ether of the orthosilicic acid on the ethyl ether of the orthosilicic acid on heated metal bases has been published. The formation of a SiO₂ film takes place at 900 - 1,100°C. Tungsten and molybdenum wires and Nichrome and tungsten plates were used as bases. The air was evacuated from the apparatus (Figure 1) to a pressure of 10⁻⁴ mm. The temperature was measured by a pyrometer of type OPT-9, the layer thickness by an optometer IKB. The repeated measurements of the thickness yielded different values in the same point which is explained by

Card 1/2

SCN/80-32-5-19/52

The Preparation of Thin Dielectric Films of Silicon Dioxide and Some of Their Properties

the increasing mellowness of the layer. Spectral analysis proved the absence of impurities in the films. Roentgenographic analysis showed the absence of crystalline silicon dioxide. The rate of film formation on a Nichrome base is considerably slower than on tungsten and molybdenum bases. The author thanks Ya. S. Savitskaya for her help. There are: 3 tables, 1 diagram, 1 graph and 2 non-Soviet references.

SUBMITTED: January 8, 1958

Card 2/2

S/078/62/007/009/001/007
B144/B101

AUTHORS: Savitskaya, Ya. S., Tvorogov, N. N., Kalabukhova, S. V.,
Brykina, L. S.

TITLE: Thermal decomposition of yttrium, scandium, and lanthanum
oxalates

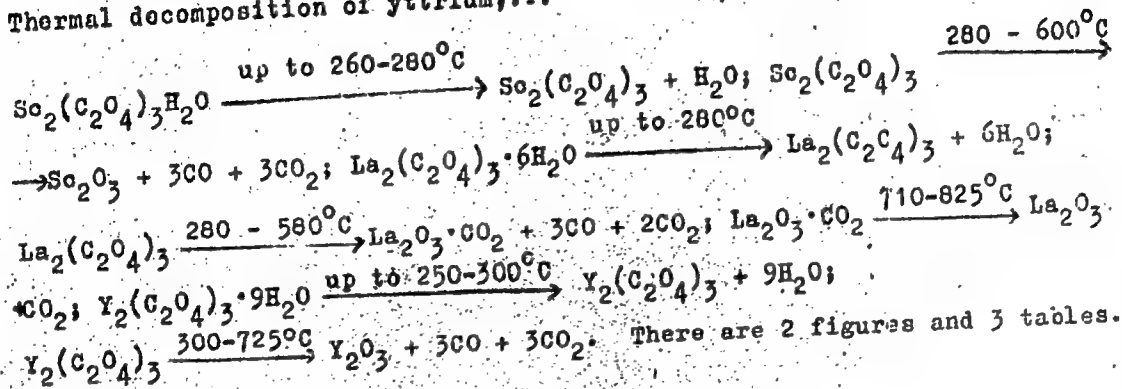
PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 9, 1962, 2029-2033

TEXT: Y, Sc and La oxalates are synthesized from the corresponding
chlorides and oxalic acid. Their decomposition in air was investigated
by thermographic, thermogravimetric, and gas analyses. Decomposition
proceeds with evolution of CO_2 and CO. Thermal analysis reveals 3
decomposition stages: 1) separation of crystal water; 2) gradual de-
composition of oxalates with evolution of CO and CO_2 ; 3) formation of
oxides. The exothermic effects occurring predominantly at $>300^\circ\text{C}$ are due
to the oxidation of CO to CO_2 in air, this being proved by the absence
of exothermic effects when Y oxalate decomposes in He atmosphere. The
decomposition patterns suggested are:

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S/078/62/007/009/001/007
B144/B101

Thermal decomposition of yttrium,...



There are 2 figures and 3 tables. ✓

SUBMITTED: November 27, 1961

Card 2/2

KOROLEV, G.V.; TVOROGOV, N.E.

Polymerization in highly viscous media and three-dimensional
polymerization. Part 6. Vysshem. shkol. t. no. 6 s1006-1011 ss 104
(MIRA 12:12)

1. Institut khimicheskoy fiziki AN SSSR.

15 2230

3009, 3309,

25661

S/080/60/033/012/019/024
D209/D305

AUTHOR: Tvorogov, N.N.

TITLE: Production of thin dielectric films of boron oxide
on metallic backings

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 12, 1960,
2778 - 2880

TEXT: Several methods of obtaining thin coatings -- dusting, electrophoresis, electrolysis, vacuum atomization, etc. -- are widely used in radio engineering, electronics and metallography. But their application often gives rise to certain difficulties, so the author devised a technique for preparing very thin dielectric films of boron oxide on tantalum plate which in its basic principles resembles the process developed by N.M. Tvorogov (Ref. 2: Zh. prikl. khimii, 33, 1043, 1959) for producing dielectric silica films through the dissociation of the ethyl ester of orthosilicic acid. Fig. 1 illustrates the experimental apparatus, the procedure being

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S/080/60/033/012/019/024

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Production of thin dielectric ...

as follows: the insertion of an annealed and weighed tantalum plate (2), with dimensions of 60 x 15 x 0.1 mm, in a glass cylinder (1) between two leads (3); the immersion of an ampoule (4) with liquid nitrogen and tri-ethyl borate in a Dewar flask; the creation of a vacuum 8×10^{-5} mm; the breaking of the ampoule by a plunger (5) and the disconnection of the vacuum system by a stopcock (6); the maintenance of the plate for certain temperatures -- 700°, 800°, 900° -- and times in the tri-ethyl borate vapor; and the reweighing of the plate after its removal from the gradually-cooled vessel. X
The results show that the rate of B_2O_3 formation largely depends on the backing temperature and on the buoyancy of the tri-ethyl borate vapor. Thus, glassy film with a thickness of 9.8 - 10.7 μ is obtained on preheating the ampoule to 60° at a backing temperature of 900° for 30 minutes, as compared with a thickness of 1.25 μ for a backing temperature of 700° and a heating period of 10 minutes. On exposure to air B_2O_3 absorbs moisture and changes into certain boric acids -- HBO_2 , $H_2B_4O_7$, H_3BO_3 -- whose composition depends on the initial thickness of the film and on the time of its exposure.

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S/080/60/033/012/019/024
D209/D305

Production of thin dielectric ...

re. Films with generally similar rates of formation may also be obtained on tungsten plates, but the reaction takes place much more slowly in the case of nichrome backings. There are 2 figures, 1 table and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: H.B. Law, Rev. Sci. Inst., 20, 958, 1949.

ASSOCIATION: Institut radiotekhniki i elektroniki Akademii Nauk SSSR (Institute of Radio Engineering and Electronics, Academy of Sciences, USSR)

SUBMITTED: June 20, 1960

Card 3/4

ZUYEV, V.Ye.; KABANOV, M.V.; KOSHMELEV, B.P.; TWOROGOV, S.D.;
KHMELEVTSOV, S.S.

Spectral transparency and microstructure of artificial fogs.
Part 2. Izv. vys. ucheb. zav.; fiz. no. 3:92-96 '64.
(MIRA 17:9)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom
universitete imeni Kuybysheva.

L 2715-66 EWT(1)/EPF(c) LJP(c) WW/GG

ACCESSION NR: AP50171B4

UR/0139/65/000/003/0147/0148

AUTHOR: Tvorogov, S. D. *44, 5*

TITLE: On the determination of the coefficient of light attenuation by a particle *21, 44, 5 38 35 13*

SOURCE: IVUZ. Fizika, no. 3, 1965, 147-148

TOPIC TAGS: light absorption, light scattering, light transmission, light polarization

ABSTRACT: The author extends the usual concept of attenuation coefficient, normally used for waves and particle beams, to include the scattering of a plane electromagnetic polarized wave by a particle of arbitrary shape. The radiation between the screening coefficient, defined as the difference between the scattered and absorbed light, and the attenuation coefficient, defined as the light received at some area with and without the particle in its path, is established and the conditions under which both become equal are discussed. It is shown that the screening coefficient does not depend on the polarization, and that the two coefficients become equal when the dimensions of the receiving area become much larger than the dimensions of the first Fresnel zone. Orig. art. has: 7 formulas.

ASSOCIATION: Sibirskiy fiziko-tehnicheskoy institut imeni V. D. Kuznetsova

Card 1/2

L 2715-66

ACCESSION NR: AP5017184

(Siberian Physicotechnical Institute)

SUBMITTED: 10 June 64

ENCL: 00

SUB CODE: OP, NP

NR REF SOV: 001

OTHER: 005

mlr
Card 2/2

L 09372-67 EWT(1)/FCC RO/GW
ACC NR: AF6023407

SOURCE CODE: UR/0139/66/000/CO3/0007/0013

AUTHOR: Zuyev, V. Ye.; Sokolov, V. V.; Tvorogov, S. D.

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov (Sibirskiy fiziko-
tekhnicheskiy institut)

TITLE: Aerosol component of spectral transparency of atmospheric haze in the 0.5 - 14
micron wavelength range

SOURCE: IVUZ. Fizika, no. 3, 1966, 7-13

TOPIC TAGS: aerosol, atmospheric transparency, particle distribution, atmospheric
optics, atmospheric water vapor

ABSTRACT: The author analyzes the behavior of the relative aerosol attenuation coef-
ficient as a function of the wavelength, the meteorological distance, the propagation
distance of the radiation, the particle-dimension distribution function, and the
minimum and maximum radii of the particles. Both horizontal and oblique propagation
of radiation in haze are considered. The various factors entering in the expression
for the attenuation coefficient are gathered from the literature, and tables of the
attenuation coefficient and of its spectral components are presented. The data ob-
tained are sufficient to calculate the spectral transparency of the aerosol component
of attenuation of radiation by atmospheric haze in the lower 5-km layer of the atmo-
sphere for different relative placements of the receiver and of the source. Some
practical plots of the spectral transparency variations are presented. Although the

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L 09372-67

ACC NR: AP6023407

calculations are made for homogeneous spherical droplets, the results are applicable to two-layer particles of irregular shape. It is pointed out in the conclusion that a rigorous theoretical solution of the problem of attenuation of particles of irregular form cannot be obtained at present because of lack of data on the shape and chemical composition of particles of the atmospheric aerosol. Orig. art. has: 6 figures, 15 formulas, and 2 tables.

SUB CODE: 20, 04/ SUBM DATE: 15Jul64/ ORIG REF: 002/ OTH REF: 005

Card 2/2 LC

L 02362-67 EWT(1)/PCG OW
ACC NR: AFG023419

SOURCE CODE: UR/0139/65/000/003/0121/0125

AUTHOR: Zuyev, V. Ye.; Koshelev, B. P.; Tvorogov, S. D.; Khmelevtsov, S. S. 42

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov (Sibirskiy fiziko-
tekhnicheskii institut) 16

TITLE: Spectral transparency and microstructure of artificial fogs. III. Comparison
of calculated and experimental data. ✓

SOURCE: IVUZ. Fizika, no. 3, 1966, 121-125

TOPIC TAGS: atmospheric transparency, atmospheric water vapor, aerosol, fog, atmospheric cloud, light absorption

ABSTRACT: In the first two parts (Izv. vuzov SSSR, Fizika, nos. 2 and 3, 1964) the authors determined the transparency and attenuation coefficients of artificial and natural fogs for a wide range of microstructure parameters. The present article describes the concluding investigations and presents a summary of the results, which cover more than 800 samples containing in all some 500,000 drops, and more than 2000 spectral measurements. The theoretical values of the attenuation coefficient of the aerosol components of clouds and fogs, calculated by the method proposed in the earlier papers, is compared with experimental results obtained in an artificial fog chamber. The optical density of the investigated fogs ranged between 0.06 and 2.7, the attenuation coefficient at 0.42μ wavelength was $0.02 - 0.9 \text{ m}^{-1}$, and the ratio of the attenuation coefficient at other wavelengths to that at 0.42μ ranged from 0.37 to 1.41, de-

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ACC NR: AP6023419

pending on the microstructure parameters. The measurements were made at a large number of wavelengths from 1 to 14.0 μ . The rms drop diameters ranged from 3.3 to 22.5 μ . The measured and calculated relative attenuation coefficients were in good agreement except for the wavelengths 6.0 and 6.5 μ , but the absolute attenuation coefficients did not agree, the discrepancy being by as much as a factor of 8 in some cases. The only possible explanation for the discrepancy may be inaccurate determination of the fog droplet concentration in the trap. Experiments aimed at checking this accuracy are now under way. Orig. art. has: 4 figures, 4 formulas, and 2 tables.

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L 04685-67 FSS-2/EWT(1)/FCG TT/GW

ACC NR: AP6001666

SOURCE CODE: UR/0051/65/019/006/0994/0994

AUTHOR: Zuyev, V. Ye.; Tvorogov, S. D.

ORG: none

TITLE: Conference on the spectral atmospheric transparency

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 994

TOPIC TAGS: atmospheric transparency, IR spectroscopy, light scattering

ABSTRACT: A scientific conference on spectral transparency of the atmosphere in the visible infrared range of spectrum, organized by the schools of higher education, was held from June 29 to July 1, 1965 in Tomsk. In this conference 127 representatives from 15 towns participated; 45 reports were presented and discussed. 11 of these reports were devoted to different aspects of the problem of absorption function. The discussions showed that at present two methods developed for calculating the absorption function: the utilization of a spectrum model and the approximation of the experimental data determined by the standard formulas. Also there are two ways of approach to the problem of absorption function in case of an inhomogeneous medium: the method of reduced mass and the method of weighted mean pressure. The problems of spectroscopy of the absorbing components of atmosphere (water vapor, carbon dioxide, ozone, oxygen) were discussed on 8 conferences. The main attention was focused by the authors on

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the obtaining of quantity data on the state, intensity and halfwidth of the absorption line of atmospheric gases, and on the analysis of the contour of line in a strong electromagnetic field. In 8 reports some theoretical problems associated with the light dispersion in atmosphere were investigated. Modern problems included the attempt to interpret the transport equations from the point of view of electrodynamics and the analysis of the transport equations for unresolved absorption bands. 10 reports were devoted to the discussion of results of experimental study of the light scattering by aerosols. 3 reports contained the data on the transparency of atmosphere in various sections of spectrum and for different meteorological conditions. The description of the measuring instruments was given in 2 reports. A summary of the analysis of modern experimental and theoretical material about individual characteristics of the absorption lines of the main absorbing components of atmosphere was presented by V. Ye. Zuyev (SFTI, Tomsk). K. Ya. Kondrat'yev, I. Ya. Badinov, S. D. Andreyev, D. V. Andreyev (Leningrad, LGU), informed about the basic results of the ground and high level investigations of the transparency of atmosphere. A. P. Ivanov (IF AN BSSR, Minsk), submitted for discussion the experimental material on the optical properties of dispersing model atmosphere gathered by him. The conference showed that the following trends are successfully developing: the theoretical and experimental study of the absorption function for various spectral ranges, the methods for solving the transport equations in a dispersing medium for different geometries and the estimation of the polarization effects at dispersion, the analysis of the connection between the optical and microphysical characteristics of aerosols, the investigation of the instrument

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coefficient of light attenuation in a dispersing medium, the determination of the content of absorbing atmospheric components by a spectroscopic method, the methods for solving the inverse problems of scattering, the study of the propagation of waves in a turbulent atmosphere. Recently are very intensively developing two new important trends: the interpretation of the optical and radiation data of the artificial earth satellite and the investigation of the propagation of laser radiation in atmosphere. The second problem is especially closely linked with the problem of atmospheric transparency. The features of laser emission require a wide application of molecular spectroscopy, analysis of the problem of light dispersion by a system of particles from the point of view of electrodynamics and a thorough study of the fluctuations of local optical properties of atmosphere.

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L 6938-66 EWT(1)/FCC GS/GW

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UR/0000/64/000/000/0223/0226

AUTHOR: Zuyev, V. Ye.; Nesmelova, L. I.; Sapozhnikova, V. A.; Tvorogov, S. D.

TITLE: Calculations of atmospheric transparency for infrared radiation

SOURCE: Mezhdunarodnoye soveshchaniye po aktinometrii i optike atmosfery. 5th, Moscow, 1983. Aktinometriya i optika atmosfery (Actinometry and atmospheric optics); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1984, 223-228

TOPIC TAGS: Infrared radiation, atmospheric water vapor, atmospheric transparency, atmospheric light absorption, atmospheric optics

ABSTRACT: Precise computation of the absorption coefficient and the absorption function for the infrared absorption spectra of the principal absorbing components of the atmosphere is discussed. Such computations require knowledge of a large number of parameters characterizing both the molecule whose absorption spectrum is radiated and the transitions causing the presence of these lines and bands. Since much computation work is involved, simplification has been sought by using models of absorption bands. In this paper, the quasi-statistical model is used (V. R. Stull, P. J. Wyatt, G. N. Plass, Final report of the theoretical study of infrared radiative behavior of flames, 1961). In this approach, the

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statistical model is applied to a quite narrow spectral range so that, within this interval, any position of lines is equi-probable. The values for water vapor, carbon dioxide and ozone used in this paper were taken from the literature. Computations of absorption in the ozone band were made for heights of 10 and 21 km. The results are shown in Figures 1-4 of the Enclosure. Figures 1 and 2 show the spectrum of the water vapor and carbon dioxide bands (with overlapping taken into account) for pressures of 1 and 0.3 atm. Fig. 3 shows the absorption spectrum of water vapor for different pressures. Fig. 4 shows the absorption of carbon dioxide. Orig. art. has: 4 figures.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete (Siberian Physics and Technology Institute at Tomsk State University)

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